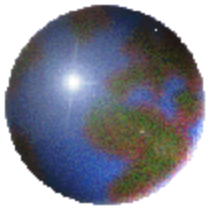
3D/4D Modeling and Visualization



Caltrans

Surveys

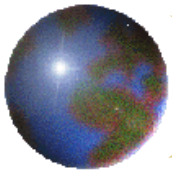
3D/4D/BIM

- Land Surveyors within Caltrans Embrace Innovation
- The Implementation of Innovative Approaches and Technologies has Increased Productivity and Safety of the Staff
- The Implementation of Innovation is Aided by Research Projects

3D/4D/BIM

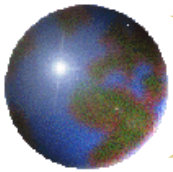
Research Projects - OLS

- Stationary Laser Scanning
- Field Use Training on 3D Laser Scanning on Caltrans Projects
- Evaluating Mobile laser scanning
- Airborne GPS Photogrammetry



3D/4D Modeling and Visualization

The Future is Here Today



3D/4D Modeling and Visualization and Building Information Modeling

BIM is the process of generating and managing data during a project's life cycle. Typically it uses three-dimensional data related to a time component (4D) as well as other geospatial data to increase productivity during design and construction. The process produces a model, which encompasses project geometry, spatial relationships, geographic information, quantities, and properties of project components.

3D/4D/BIM

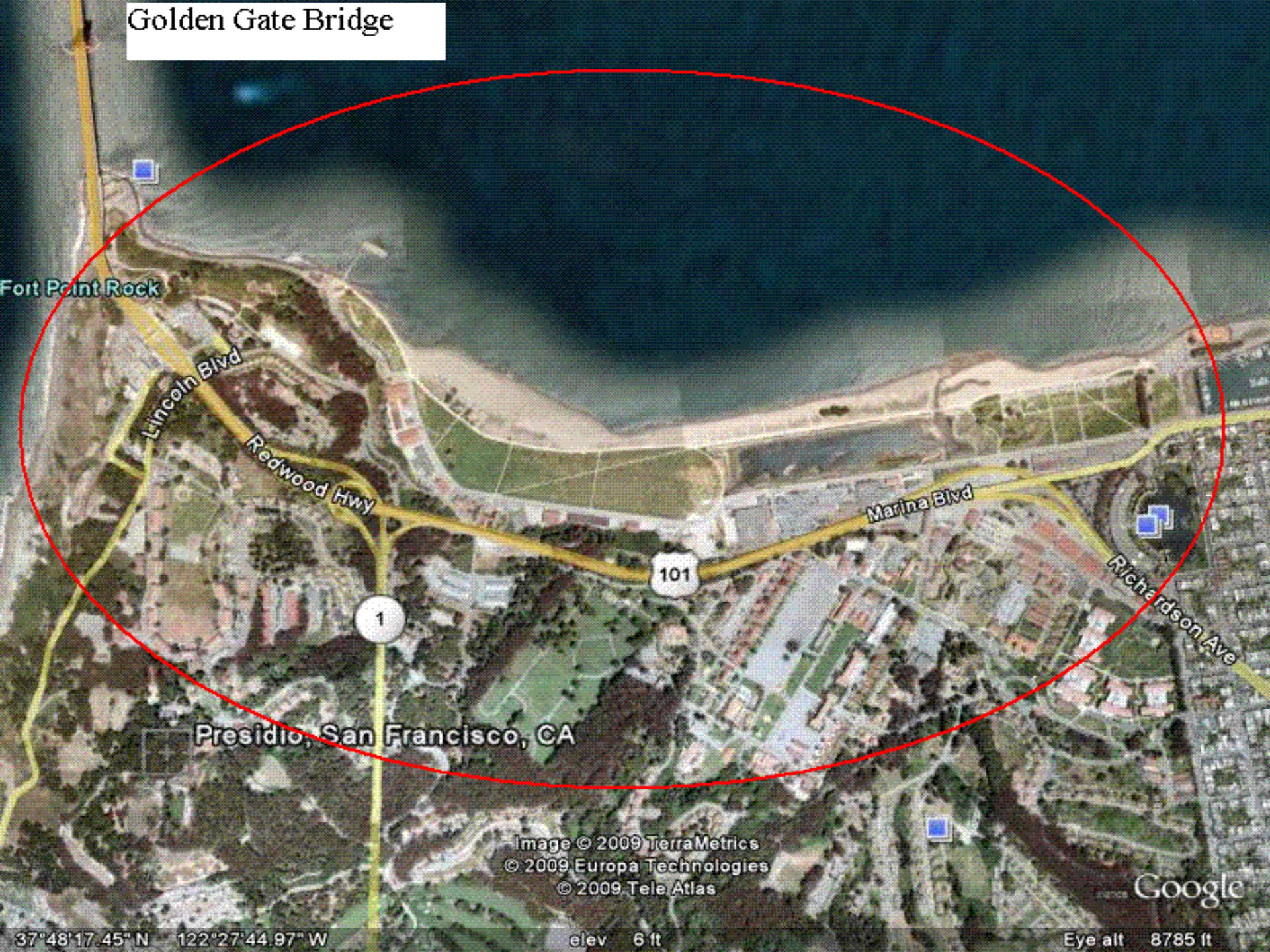
Core Value: Innovation

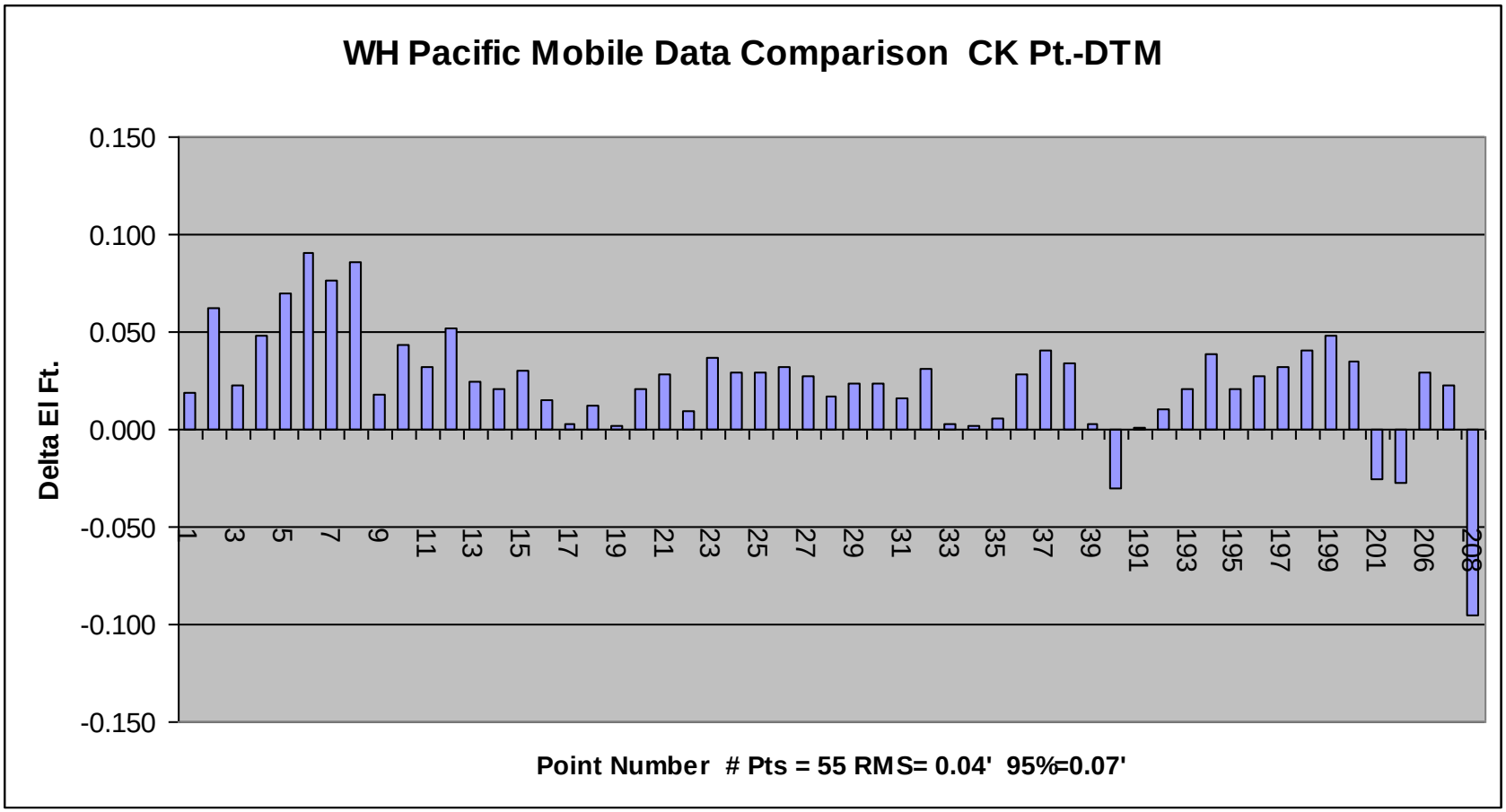
- Terrestrial Laser Scanning
- Mobile Laser Scanning
- Automated Machine Guidance Systems

Stationary Laser Scanner

Chevron Pipes


LYNX
MOBILE MAPPER
WHPacific
LYNX


Golden Gate Bridge
Fort Point Rock
Lincoln Blvd
Redwood Hwy
Marina Blvd
101
1
Richardson Ave
Presidio, San Francisco, CA
Image © 2009 TerraMetrics
© 2009 Europa Technologies
© 2009 Tele Atlas
Google
37°48'17.45" N 122°27'44.97" W
elev 6 ft
Eye alt 8785 ft



Cost/Benefit Analysis

Guidelines

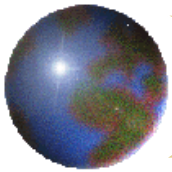
Building Information Modeling

- Example 1
- Example 2

3D/4D/BIM Benefits

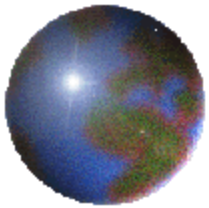
- Constructability Review
- Quantity Tracking
- As-built Documentation
- Public Relations – Animations
- Schedule Optimization
- Improved Change Management
- Clash Detection

Machine Guidance



Growing Pains with Implementing Innovative Technologies

- Qualified Personnel
- Training
- Standards and Specifications
- Computing Power
- Computer Storage
- Customer Products



Questions